

COMPLETE LISTING OF CLAIMS, INCORPORATING AMENDMENTS
IN RESPONSE TO OFFICE ACTION DATED 07/13/2005
FOR SERIAL NO. 10/787,220

We claim:

1.(Currently Amended) An apparatus for detecting electrically conducting dust particles on a surface exposed to an air or a vacuum environment comprising:

an electrically conducting detection grid having two or more interlocking tracing networks where each network has a plurality of ~~tracing~~ tracings, where adjacent tracings have a specified separation or spacing and which in a dust free environment said grid represents an open circuit between adjacent tracings and where in an environment of settled dust an electrically conducting bridge of dust particles is established between adjacent tracings forming a electrical short which exists for a varying time duration;

an electrically nonconducting substrate which supports said grid and where said substrate is mounted on a specified, possibly isolated, fixed surface to detect a presence of conducting dust particles which have settled on said surface;

a power supply which is electrically coupled to said grid and which is sized to provide voltage sufficient to vaporize said dust particle bridge;

a means for detecting ~~electrical changes~~ an electrical change or a short across said grid tracings where said electrical change or short indicates the presence of electrically conducting dust particles on said surface.

2.(Original) The apparatus of claim 1 where said electrical change detection means includes a means for filtering a signal generated by a electrical change across said grid such as a voltage change.

3.(Original) The apparatus of claim 2 where said filter is a bandpass filter.

4.(Original) The apparatus of claim 2 where said filtered signal is inputted to a means for processing said signal.

5.(Original) The apparatus of claim 4 where said processing means includes a channel analyzer to which a counter is electrically coupled.

6.(Original) The apparatus of claim 4 where said processing means includes an oscilloscope.

7. (Original) The apparatus of claim 1 where said power supply is capable of providing a variable bias voltage across a plurality of traces which form said grid.

8.(Original) The apparatus of claim 1 where said trace specified separation or spacing is determined based on the expected dust particle size.